

What is claimed is:

1. A toner for use in an image forming process, comprising:
a modified polyester resin;
a coloring agent;
a releasing agent; and
a coating,

wherein the toner has a volume-average particle diameter D_v ,
a number-average particle diameter D_n and a shape factor SF-1,
wherein D_v is in a range of from 4.0 μm to 6.0 μm , the ratio D_v/D_n
of D_v to D_n is in a range of from 1.00 to 1.30, and the shape factor
SF-1 is in a range of from 140 to 200, and

wherein the toner can be used in a toner recycling system.

2. A toner according to Claim 1, wherein the toner is
produced by a process comprising the steps of:

dissolving or dispersing a composition in an organic solvent
to form a solution or dispersion, the composition comprising a resin
reactive with a compound having an active hydrogen group, a
coloring agent and a releasing agent;

dispersing the solution or dispersion in an aqueous medium
during at least one of elongation and crosslinking reactions of the
resin thereby forming a reacted dispersion; and

removing the organic solvent after or during at least one of
the elongation and crosslinking reactions of the resin.

3. A toner according to Claim 2, wherein the composition further comprises a compound having an active hydrogen group.

4. A toner according to Claim 2, wherein the process further comprises the step of adding a compound having an active hydrogen group during the step of dispersing the solution or dispersion in the aqueous medium.

5. A toner according to Claim 2, wherein the aqueous medium comprises fine polymer particles, wherein the fine polymer particles are capable of forming a coating.

6. A toner according to Claim 1, wherein the ratio D_v/D_n is from 1.00 to 1.20.

7. A toner according to Claim 1, wherein the shape factor SF-1 is from 150 to 180.

8. A toner according to Claim 1, wherein the content percentage of particles having a diameter of 2 μm or less in a particle diameter distribution determined with a flow particle image analyzer is 15% by number or less.

9. A toner according to Claim 1, having an average

sphericity of from 0.90 to 0.95 as determined with a flow particle image analyzer.

10. A toner according to Claim 5, wherein the fine polymer particles have a glass transition point T_g of from 50°C to 110°C.

11. A toner according to Claim 5, wherein the fine polymer particles comprise at least one resin selected from the group consisting of vinyl resins, polyurethane resins, epoxy resins, polyester resins, polyamide resins, polyimide resins, silicone resins, phenolic resins, melamine resins, urea resins, aniline resins, ionomer resins, and polycarbonate resins.

12. A toner according to Claim 5, wherein the fine polymer particles have a volume average particle diameter of from 10 nm to 200 nm.

13. A toner according to Claim 2, wherein the process further comprises the step of agitating the reacted dispersion in an agitation vessel with an agitator having a peripheral speed of 5 m/s or more to convert spherical particles into elliptic particles before the step of removing the organic solvent.

14. A toner according to Claim 1, wherein the modified polyester resin is a urea-modified polyester resin.

15. A toner according to Claim 1, further comprising an unmodified polyester resin.

16. A toner according to Claim 15, wherein the unmodified polyester resin has a glass transition point T_g of from 40°C to 70°C.

17. A toner according to Claim 15, wherein the unmodified polyester resin has an acid value of from 1 mg-KOH/g to 30 mg-KOH/g.

18. A toner according to Claim 1, which is used in a two-component developer.

19. A two-component developer for use in an image forming process, comprising:

a toner; and

a carrier,

wherein the toner contains:

a modified polyester resin;

a coloring agent;

a releasing agent; and

a coating, the toner having a volume-average particle diameter D_v , a number-average particle diameter D_n , and a shape factor SF-1,

wherein D_v is in a range from 4.0 μm to 6.0 μm , the ratio D_v/D_n of D_v to D_n is in a range from 1.00 to 1.30, and the shape factor SF-1 is in a range from 140 to 200, and

wherein the developer can be used in a toner recycling system.

20. An image forming apparatus, comprising:
a photoconductor;
a charger for charging the photoconductor;
an exposer for exposing the photoconductor to light to form a latent electrostatic image;
a developing unit containing a toner and serving for developing the latent electrostatic image using the toner to form a toner image;
a transferring unit for transferring the toner image from the photoconductor to a transfer material; and
a cleaner for cleaning a residual toner on the surface of the photoconductor with a blade after transfer,
wherein the toner contains:
a modified polyester resin;
a coloring agent;
a releasing agent; and
a coating, the toner having a volume-average particle diameter D_v , a number-average particle diameter D_n , and a shape factor SF-1,

wherein D_v is in a range from 4.0 μm to 6.0 μm , the ratio D_v/D_n of D_v to D_n is in a range from 1.00 to 1.30, and the shape factor SF-1 is in a range from 140 to 200.

21. An image forming apparatus according to Claim 20, wherein the photoconductor is an amorphous silicon photoconductor.

22. An image forming apparatus according to Claim 20, wherein the developing unit has an alternating electric field applying unit for applying an alternating electric field upon development of the latent electrostatic image on the photoconductor.

23. An image forming apparatus according to Claim 20, wherein the charger comprises a charging member and the charger is so configured as to bring the charging member into contact with the photoconductor and apply a voltage to the charging member to thereby charge the photoconductor.

24. A process cartridge, integrally comprising:
a photoconductor; and
at least one selected from the group consisting of:
a charger for charging the photoconductor;
a developing unit containing a toner and serving for

developing a latent electrostatic image using the toner to form a toner image; and

a cleaner for cleaning a residual toner on the photoconductor with a blade after transfer,

the process cartridge being detachable from and attachable to a main body of an image forming apparatus,

wherein the toner contains:

a modified polyester resin;

a coloring agent;

a releasing agent; and

a coating, the toner having a volume-average particle diameter D_v , a number-average particle diameter D_n and a shape factor SF-1,

wherein D_v is in a range from 4.0 μm to 6.0 μm , the ratio D_v/D_n of D_v to D_n is in a range from 1.00 to 1.30, and the shape factor SF-1 is in a range from 140 to 200.

25. An image forming process, comprising the steps of:
charging a photoconductor;

exposing the photoconductor to light to form a latent electrostatic image;

developing the latent electrostatic image using a toner to form a toner image;

transferring the toner image from the photoconductor to a transfer material; and

cleaning a residual toner on the photoconductor with a blade after transferring,

wherein the toner contains:

a modified polyester resin;

a coloring agent;

a releasing agent; and

a coating, the toner having a volume-average particle diameter D_v , a number-average particle diameter D_n and a shape factor SF-1,

wherein D_v is in a range from 4.0 μm to 6.0 μm , the ratio D_v/D_n of D_v to D_n is in a range from 1.00 to 1.30, and the shape factor SF-1 is in a range from 140 to 200.

26. A toner for use in an image forming process, comprising:

a modified polyester resin;

a coloring agent;

a release agent; and

a plurality of fine polymer particles,

wherein the surface of the toner is coated with the plurality of fine polymer particles,

wherein the toner has a volume-average particle diameter D_v , a number-average particle diameter D_n and a shape factor SF-1, wherein D_v is in a range of from 4.0 μm to 6.0 μm , the ratio D_v/D_n of D_v to D_n is in a range of from 1.00 to 1.30, and the shape factor

SF-1 is in a range of from 140 to 200, and
wherein the toner can be used in a toner recycling system.